WE CLAIM:

1. A test plug tool for use in testing a pressure integrity of a pressure control stack mounted to a wellhead, including testing the pressure integrity of a joint between a casing and a casing support that secures the casing to the wellhead stack assembly, the test plug tool providing a high pressure seal with the casing below the joint between the casing and the casing support.

2. The test plug tool as claimed in claim 1 further comprising a test plug hanger and a test plug, the test plug hanger including a hanger flange at a top end thereof and a test plug support leg that depends from the hanger flange and includes a bottom end for supporting the test plug in the casing.

3. The test plug tool as claimed in claim 1 further comprising a fluid passage that permits pressurized fluid injected into the wellhead stack assembly to flow through the hanger flange.

4. The test plug tool as claimed in claim 2 wherein the test plug comprises a cup tool.

5. The test plug tool as claimed in claim 4 wherein the cup tool comprises a cup sleeve that terminates in a bullnose for guiding the test plug through the wellhead stack assembly.

6. The test plug tool as claimed in claim 4 wherein the cup tool comprises an elastomeric cup for sealing

against the casing, an annular sealing element compressed against the casing by the elastomeric cup, and a gauge ring to inhibit the sealing element from being extruded into an annulus between the bullnose and the casing.

7. The test plug tool as claimed in claim 2 wherein the test plug leg is hollow to reduce a weight of the test plug tool.

8. The test plug tool as claimed in claim 2 further comprising a landing joint connector located above the hanger flange.

9. The test plug tool as claimed in claim 8 wherein the landing joint connector comprises a socket with a box thread for receiving a pin thread of one of a drill pipe, a production tubing, and a landing joint.

10. The test plug as claimed in claim 2 wherein the hanger flange is received in a top end of a drilling flange and has beveled top corners engaged by locking pins of the drilling flange to lock the test plug tool in the wellhead stack assembly.

11. The test plug tool as claimed in claim 5 wherein the cup sleeve is a hollow cylinder.

12. The test plug tool as claimed in claim 2 wherein the test plug tool is used to pressure test a joint between a production casing and a production casing mandrel of the wellhead stack assembly, and the test plug hanger comprises an elongated tubular member

having a pin threaded top end for treaded engagement with a flanged adapter for sealing a top of the wellhead stack assembly, and a hanger flange having a beveled bottom shoulder received in a bowl-shaped abutment at a bottom of a tubing head spool of the wellhead stack assembly.

13. The test plug tool as claimed in claim 12 wherein the test plug hanger further includes a fluid passage through a sidewall of the test plug hanger, the fluid passage being located below the hanger flange and above a bottom end of the test plug hanger.

14. The test plug tool as claimed in claim 13 wherein the test plug comprises a cup tool.

15. The test plug tool as claimed in claim 14 wherein the cup tool comprises a cup sleeve that terminates in a bullnose for guiding the test plug through the wellhead stack assembly.

16. The test plug tool as claimed in claim 14 wherein the cup tool comprises an elastomeric cup for sealing against the casing, an annular sealing element compressed against the casing by the elastomeric cup, and a gauge ring to inhibit the sealing element from being extruded into an annulus between the bullnose and the casing.

17. The test plug tool as claimed in claim 2 wherein the test plug hanger comprises:

an axial passageway bored through a central portion of the test plug hanger, the axial passageway

permitting pressurized fluid that may have leaked below the test plug to flow upwardly through the central portion of the test plug hanger; and

a backpressure valve in fluid communication with the axial passageway, the backpressure valve throttling the pressurized fluid flowing upwardly through the test plug hanger.

18. The test plug tool as claimed in claim 17 further comprising a landing tool connected to an upper portion of the test plug hanger, the landing tool defining a central bore through which pressurized fluid can flow upwardly after being throttled through the backpressure valve.

19. The test plug tool as claimed in claim 18 wherein the backpressure valve is threadedly connected to an upper portion of the test plug hanger.

20. The test plug tool as claimed in claim 19 wherein the backpressure valve comprises a spring-loaded ball valve having a spring exerting a downward force on a ball for obstructing an aperture of the backpressure valve.

21. The test plug tool as claimed in claim 20 wherein the backpressure valve further comprises an annular body having a lower annular shoulder defining the lower aperture, the lower annular shoulder supporting a gasket against which the ball is forced by the spring.

22. The test plug tool as claimed in claim 21 wherein the test plug hanger has an annular groove for housing a seal for providing a fluid-tight seal between the backpressure valve and the test plug hanger.

23. A method for testing a pressure integrity of a pressure control stack mounted to a wellhead, comprising:

inserting a test plug into the wellhead stack assembly and testing the pressure integrity of a joint between a casing and a casing support that secures the casing to the wellhead stack assembly using the test plug tool, which provides a high pressure seal with the casing below the joint between the casing and the casing support.

24. The method as claimed in claim 23, further comprising:

inserting the test plug tool using a landing tool;

landing the test plug in the casing beneath the joint between the casing and the casing support;

locking the test plug tool in the position in which the test plug is beneath the joint between the casing and the casing support;

detaching the landing tool from the test plug tool;

retracting the landing tool from the wellhead stack assembly;

pressurizing the wellhead stack assembly to at least an estimated operating pressure; and

inspecting the seals and joints of the wellhead stack assembly, including the joint between the casing and the casing support, to determine whether the seals and joints have withstood the test pressure.

25. The method as claimed in claim 24 further comprising pressure testing a joint between a surface casing and a wellhead.

26. The method as claimed in claim 24 further comprising pressure testing a joint between an intermediate casing and an intermediate casing mandrel.

27. The method as claimed in claim 24 further comprising pressure testing a joint between a production casing and a production casing mandrel.

28. The method as claimed in claim 24 further comprising a step of inserting the test plug tool through a blowout preventer mounted to the wellhead stack assembly and pressure testing the rams of the blowout preventer as well as the wellhead stack assembly.

29. The method as claimed in claim 24 further comprising steps of, subsequent to locking the test plug tool but prior to detaching the landing tool:

pressurizing the wellhead stack assembly; and

flowing pressurized fluid that may have leaked below the test plug tool upwardly through an axial passageway in the test plug tool;

throttling the pressurized fluid through a backpressure valve selectively obstructing the axial passageway; and

flowing the pressurized fluid upwardly through a central bore of the landing tool for alerting a user of a leak in the test plug tool.